No. 7700030

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Purdue University Agricultural Experiment Station and USDA, ARS

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THEIR SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Key'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office *to be affixed at the City of* Washington *this* 14th *day of* June *in the year of our Lord one thousand nine hundred and* seventy-seven

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(1-76)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
PLANT VARIETY PROTECTION OFFICE
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
	KEY	PV NUMBER 7700030
2. KIND NAME	3. GENUS AND SPECIES NAME	FILING DATE 1-24-77 / TIME 12:00 (A.M.) P.M.
Wheat	Triticum aestivum	FEE RECEIVED $ 250.00 / $ 250.00 / $ 250.00 — DATE 1-24-77 / 3-11-77 / 6-13-77
4. FAMILY NAME (BOTANICAL)	5. DATE OF DETERMINATION	
Gramineae	January 1, 1976	

6. NAME OF APPLICANT(S)	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	8. TELEPHONE AREA CODE AND NUMBER
Purdue University Agricultural Experiment Station and USDA - ARS	Agricultural Administration Building Purdue University West Lafayette, Indiana 47907 Washington, D. C. 20250	317-749-6005

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.)	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Dr. B. J. Liska, Director
Agricultural Experiment Station
Purdue University
West Lafayette, Indiana 47907

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal? [X] YES [ ] NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

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Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

11/22/76
(DATE)

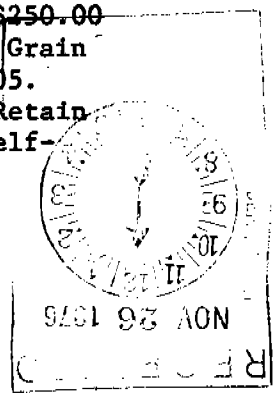
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and ~~$250.00~~ fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.



ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give (1), the genealogy, including public and commerical varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4), evidence of stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.

14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)

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12A. Exhibit A. Origin and Breeding History of Key CI 15928

Key was developed at the Purdue University Agricultural Experiment Station in cooperation with the Agricultural Research Service, United States Department of Agriculture. It is a high protein Soft Red Winter Wheat potentially useful for high protein soft wheat products. It has been widely tested in Indiana and in national and international nurseries.

Key derives its high protein level from the Brazilian, red-seeded, spring-wheat cultivar Frondoso, P.I. 106504, which is the sources of the high protein in Atlas 66. The detailed parentage of Key is: Frondoso PI106504/Fultz sel. CI11845/4/Trumbull/2/Hope/Hussar/3/Fulhio/Purkof/5/Fairfield/4/PI94587/2/*2 (Purdue 29408) Fultz CI11512/Hungarian/4/Trumbull *3/2/Hope/Hussar/3/Trumbull/2/W38/Purdue 29408.

Key is consistently two to three percent higher in grain protein content both in Indiana and in international tests than commonly grown soft red winter wheat cultivars. It possesses a high level of leaf rust resistance which is also from the Frondoso parent and which has been observed to be strongly associated with the high protein level. It is also resistant to stem rust, presumably from the Hope/Hussar parent. It has the H_6 gene for resistance to Hessian fly derived from the durum P.I.94587 parent.

Key is a red-seeded, awnletted, brown glumed cultivar. It is similar to Redcoat in height, maturity, and winter survival, and is well-adapted in the Eastern soft wheat region.

77-30

March 24, 1977

WHEAT APPLICATION NO. 7700030 ('KEY')

Ammendment to Original Exhibit A

Following the final cross, plant selections were made in the F_1, F_2, F_5 and F_6 generations. Selection was practiced for resistance to leaf rust and stem rust and for plant type. Pure seed was first formed by the combining of seed of 100 uniform plant progeny rows in the F_{10} generation in 1964. This seed was regrown in 1965 (F_{11}) and 1969 (F_{12}) for use in special experiments on protein level. The seed lot was regrown in 1974 (F_{13} generation) and plants were selected to initiate Breeder's Seed formation. Seed of 47 plant row progenies, judged uniform, was composited in 1975 (F_{14} generation). Breeder's Seed was formed from this lot grown in 1976 (F_{15} generation of selfing).

The white chaff color variant has occurred in a very low frequency in the Key seed. None occurred in the 1976 Breeder's Seed field.

Breeder's Seed of Key is in the 15th generation of selfing. This amount of selfing leads to a quite homozygous variety which is true breeding from normal self-pollination in isolation from other cultivars.

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UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE

14th and Independence Avenue, Rm. 1634

WASHINGTON, D.C. 20250

PLANT VARIETY PROTECTION OFFICE

Gentlemen:

Subject: Application No. 7700030
Variety and Kind - 'Key' - Wheat

As provided in section 83(a) of the Plant Variety Protection Act, 7 U.S.C. 2321, we request that the Certificate on the above variety be issued with a notation on each Certificate that the right to exclude others from selling, offering for sale, reproducing, importing or exporting the variety covered by this Certificate, or using it in producing a hybrid or different variety is waived.

It has been agreed that the certificate should be issued in the name(s) of:

Purdue University Agricultural Experiment Station

and the United States Department of Agriculture

4/25
(Date)

B J Luke
(Signature)

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7700030

Table 1. Wheat Performance at Lafayette, Indiana.

Variety	1974	1973	1972	1971 (Test 1)	1971 (Test 2)	1970	1969	1968	8 test AV 1968-74	4 test AV 1971-74
					Yield Bu/A					
Key	42.7	50.5	70.9	62.4	58.2	53.6	65.9	48.8	56.6	56.6
Arthur	46.2	59.6	81.0	76.3	63.8	68.6	88.1	51.6	66.9	65.8
Knox 62	40.5	58.8	69.6	54.3	64.2	52.1	65.9	38.5	56.0	55.8
Avon	-	56.3	58.9	-	54.3	44.5	62.6	80.9	-	-
Genesee	-	-	55.2	-	50.0	49.6	70.7	68.6	-	-
Monon	-	53.9	70.2	55.9	62.0	54.8	68.2	-	-	-
Redcoat	51.1	52.8	67.1	40.7	-	-	-	-	-	52.9
					Test Weight (lbs/bu)					
Key	62.0	60.6	61.6	57.4	57.5	61.5	61.6	60.8	60.4	60.4
Arthur	59.4	59.3	62.0	57.2	56.9	60.6	61.4	59.9	59.6	59.5
Knox 62	61.3	58.2	63.3	57.5	57.3	29.8	61.4	59.6	59.8	60.1
Avon	-	58.2	56.5	-	52.1	53.3	55.0	59.4	-	-
Genesee	-	-	57.4	-	53.1	53.9	59.3	59.3	-	-
Monon	-	59.7	61.8	56.1	55.3	59.0	59.9	-	-	-
Redcoat	57.2	59.2	59.6	57.6	-	-	-	-	-	58.9
					Height (in.)					
Key	46	43	47	42	40	44	46	36	43	45
Arthur	36	35	40	36	38	39	43	30	39	37
Knox 62	42	38	42	38	38	44	46	31	40	40
Avon	-	40	46	-	40	48	47	41	-	-
Genesee	-	-	47	-	41	49	50	43	-	-
Monon	-	41	39	38	38	39	44	-	-	-
Redcoat	47	43	41	41	-	-	-	-	-	43
					Days later than Arthur					
Key	6	4	3	3	3	2	4	6	4	4
Arthur	0	0	0	0	0	0	0	0	0	0
Knox 62	1	0	1	2	2	0	0	1	1	1
Avon	-	9	8	-	8	8	9	12	-	-
Genesee	-	-	5	-	9	8	9	12	-	-
Monon	-	-2	1	0	0	0	-1	-	-	-
Redcoat	7	7	4	7	-	-	-	-	-	6

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)

Purdue University, Agricultural Exp. Station & USDA-ARS

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

Agricultural Administration Building
West Lafayette, Indiana 47907

FOR OFFICIAL USE ONLY

PVPO NUMBER 7700030

VARIETY NAME OR TEMPORARY DESIGNATION

Key

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____ [1] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____

[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[2][3][1] FIRST FLOWERING [2][3][8] LAST FLOWERING

4. MATURITY *(50% Flowering)*:

[ ][ ] NO. OF DAYS *EARLIER* THAN [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[0][4] NO. OF DAYS *LATER* THAN [1] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT *(From soil level to top of head)*:

[1][0][7] CM. HIGH

[1][0] CM. TALLER THAN [1] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[ ][ ] CM. SHORTER THAN [ ] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING *(See reverse)*:

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[2] 1 = YELLOW 2 = PURPLE

8. STEM:

[2] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Waxy Bloom: 1 = ABSENT 2 = PRESENT

[1] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[0][4] NO. OF NODES *(Originating from node above ground)*

[2][2] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____

[1] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1][0] MM. LEAF WIDTH *(First leaf below flag leaf)*

[2][8] CM. LEAF LENGTH *(First leaf below flag leaf)*:

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77-30
Key

FORM GR-470-6 (REVISED)

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

[1] Shape: 1 = TAPERING 2 = STRAP 3 = OVATE 4 = OTHER (Specify) _____

[2] Awnedness: 1 = AWNLESS 2 = APICALLY AWNED 3 = AWNLETED 4 = AWNED

[5] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[0][9] CM. LENGTH

[1][0] MM. WIDTH

U. S. DEPARTMENT OF AGRICULTURE
RECEIVED
NOV 26 1976

12. GLUMES AT MATURITY:

[2] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[1] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[1] 1 Glabrous 2 Pubescent

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[1] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[3] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[2] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[4] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[0][6] MM. LENGTH

[0][3] MM. WIDTH

[3][4] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[2] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST (Races) 15B, 29, 38 & 56

[2] LEAF RUST (Races) 5, 35, 76 & 104

[0] STRIPE RUST (Races) _____

[2] LOOSE SMUT

[1] POWDERY MILDEW

[0] BUNT

[ ] OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID (Bydv.)

[0] GREEN BUG

[1] CEREAL LEAF BEETLE

[ ] OTHER (Specify) _____

HESSIAN FLY RACES: [0] GP [2] A [2] B [1] C [1] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Redcoat	Seed size	Monon
Leaf size	Redcoat	Seed shape	Arthur
Leaf color	Arthur	Coleoptile elongation	Arthur
Leaf carriage	Arthur	Seedling pigmentation	LaPorte

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

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LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

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12D. Botanical Description of Key

Key is a common soft red winter wheat, Triticum aestivum L.

Key is generally similar to Redcoat in winterhardiness.

Key has averaged 4 days later than Arthur in flowering date ranging from 2 to 6 days later in different years 1968 to 1974. Flowering is generally one or two days earlier than Redcoat. From October 1 plantings at Lafayette, IN, Key begins flowering in about 231 days and completes flowering in about 7 days. It is recognized that varieties respond differently to seasonal variations in temperature and planting dates.

Key has averaged 107 cm in height 1968 to 1974 which is about 10 cm taller than Arthur. It averages about the same height as Redcoat.

Key is a medium green color at booting. Anther color is purple.

Stems are typically yellow but with some light purple anthocyanin development on some stems. The internodes are hollow. Four above ground nodes are common. No or a very slight bloom is commonly present on stems. The last internode of rachis is normally glabrous. Stem strength is good. Key is resistant to "node-bending" described in Agron. J. 49: 518-519. 1957.

Auricles are generally free of hairs and lacking in anthocyanin.

Leaves are a medium green on plants at booting. Flag leaves are typically recurved and not twisted. A slight bloom is generally evident on the flag leaf sheath. Hairs are typically absent from the first leaf sheath. The first leaf below the flag leaf is typically about 10 mm wide and 28 cm long.

Spikes are lax to intermediate similar to Redcoat and tapering to strap in shape. Spikes are similar to Redcoat in size averaging 9 cm in length and 10 mm in width in a production field at Lafayette, IN in 1974. Spikes generally have a few awnlets typically near the tip. Spike rakis has a few short hairs along margins especially in mid-rachis. Spikes are brown and generally inclined to nodding at the combine ripe stage.

The glumes of Key are mid-long, narrow (to mid-wide), and brown at maturity. Shoulders are square (at mid-spike) to rounded, and narrow to mid-wide. Beaks are obtuse, wide, and generally 0.5 to 1.0 mm long.

The coleoptile color is purple. Seedling plant anthocyanin sometimes occurs.

Kernels are light red in color and ovate in shape with rounded cheeks and a mid-deep crease. The brush is medium in size and mid-long. The embryo is large like for Arthur. Kernels average about 6 mm long and 3 mm wide, and weigh about 34 g per 1000. Kernel weight is similar to Monon and less than Arthur and Redcoat.

Key has adult plant resistance to leaf rust derived from Frondoso. It showed high resistance in the field to leaf rust races 5, 35, 76 and 104 in 1968 and to races 2, 15, 34, 52, 61, 82, 104B and 114 used in 1966 and 1967. Key has shown adult plant resistance to stem rust races 15B, 29, 38 and 56 at Lafayette, IN. Presumably this resistance is derived from the Hope-Hussar parent.

Key has been resistant to races of loose smut occurring in Indiana. Light brown necrosis (common for Hope derivatives) is generally present on the glumes.

Key has been moderately susceptible to races of powdery mildew occurring in Indiana.

Key has reacted as intermediate to moderately susceptible to the Septoria leaf blotch disease (Septoria tritici) in Indiana in 1973 and 1974. On lower leaves, necrotic areas were quite large, fruiting was moderate, but destruction of upper leaves was only moderate as compared to susceptible Arthur and Monon. It is recognized that the disease is generally less severe on later maturing cultivars.

Key has the H_6 gene for resistance to Hessian fly races A and B. It is susceptible to the cereal leaf beetle as are all glabrous leaf wheat cultivars.

Key is similar to Atlas 66 in quality in being a high protein soft wheat. It is considered to have a potential use in high protein soft wheat products. Protein levels are generally 2 or 3 percentage points above soft red winter cultivars. A summary of 2 year data from the International Winter Wheat Performance Nursery were presented in tables 70, 71, 72 and 73 of the University of Nebraska Research Bulletin 248, 1972. Copies are attached. Lysine level of Key is similar to Atlas 66.

Key is a moderately productive variety similar to Redcoat and Monon (Table 1) but is not as productive as Arthur. It compares favorably in yield with the white wheats Genesee and Avon.

The test weight of Key is excellent (Table 1).

F. L. Patterson

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Research Bulletin

248

September 1972

Results of the Second International Winter Wheat Performance Nursery

J. E. Stroike
V. A. Johnson
J. W. Schmidt
P. J. Mattern

Plant Science Research Division
Agricultural Research Service
U.S. Department of Agriculture

Agriculture Technology Division
Agency for International Development
U.S. Department of State

The Agricultural Experiment Station
College of Agriculture
University of Nebraska – Lincoln
E. F. Frolik, Dean H. W. Ottoson, Director

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Table 70. Summary of two-year mean "Yields" (q/ha) for cultivars grown in the "1st and 2nd International Winter Wheat Performance Nurseries," 1969 and 1970.

Cultivar	Davis, Calif. U.S.	Stillwater, Okla. U.S.	Rowan Co... N.C. U.S.	Wageningen, Netherlands	Svalof, Sweden	Milano, Italy	Ricti, Italy	Novi Sad, Yugoslavia	Fundulea, Romania
Bezostaia	37.4	36.8	41.6	44.2	65.5	51.5	55.7	52.0	26.1
Arthur	24.8	43.2	46.0	36.8	50.7	56.4	51.1	59.9	31.6
Timwin	30.3	29.8	36.0	37.0	59.4	58.6	52.6	52.2	33.2
Sturdy	39.6	31.2	35.5	38.6	53.9	51.1	50.6	47.2	26.7
Parker	27.2	34.8	37.2	33.8	56.2	53.1	45.6	53.3	30.8
Scout 66	30.8	36.2	35.1	32.7	54.2	45.5	46.8	52.0	36.6
Yung Kwang	28.0	28.0	35.4	37.9	47.7	57.9	50.3	52.4	30.2
San Pastore	32.3	29.8	43.5	40.1	.....	56.3	41.8	48.7	27.3
Benhur	27.2	34.7	38.7	37.7	.....	49.9	50.6	54.9	30.1
Blueboy	23.6	28.0	43.0	41.0	54.9	57.6	52.5	42.0	20.7
Fertodi 293	25.7	29.2	32.4	40.2	59.3	53.0	49.4	45.9	33.0
Shawnee	23.5	28.5	37.1	32.6	47.6	53.9	49.9	47.0	30.8
Gage	23.6	32.6	36.6	36.3	49.7	46.7	44.4	52.3	32.8
Stadler	22.6	31.3	41.6	38.6	64.9	52.9	29.8	50.6	32.2
Riley 67	21.9	32.9	39.5	40.2	56.8	44.2	33.0	49.8	30.9
Triumph 64	38.5	35.4	32.8	27.9	47.3	48.7	43.6	46.4	30.4
Lancer	29.4	27.4	29.6	35.7	56.6	39.5	42.1	41.9	33.7
Yorkstar	20.9	25.9	41.4	46.1	55.5	54.1	25.0	36.0	29.2
Bankuti 1201	18.1	24.8	31.1	36.6	42.8	45.0	37.5	48.8	29.0
NB 67730	21.3	29.2	30.0	31.2	45.9	35.2	40.5	50.5	29.7
Heine VII	28.3	20.4	37.4	46.8	65.9	50.9	29.7	32.6	18.2
Atlas 66	20.7	19.8	31.8	39.5	45.1	44.2	46.7	52.0	25.0
KEY — Purdue 4930A6-28-2-1	18.8	31.1	35.7	29.4	42.3	45.8	45.0	49.1	29.6
Winalta	21.2	26.6	30.3	32.4	46.3	38.8	39.4	34.2	27.5
Gaines	27.0	22.0	38.5	41.7	52.9	42.8	23.0	36.2	16.7
Cappelle Desprez	19.0	15.9	25.4	42.6	53.9	44.5	31.8	33.1	15.2
Felix	16.4	10.5	25.9	40.3	61.5	41.3	18.3	22.8	15.1
Odin	7.1	6.7	24.2	36.2	70.2	35.5	15.5	26.0	8.9
Lerma Rojo 64	49.5	.....	.....	36.1	.....	53.1	50.1	48.4	.....
INIA 66	51.6	.....	.....	20.8	.....	41.0	41.0	.....	.....
Mean	26.9	27.9	35.5	37.0	54.1	53.4	41.1	45.5	27.2

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Table 70. (Continued)

Cultivar	Ankara, Turkey	Eskisehir, Turkey	Sulaimaniya, Iraq	Karaj Iran	Kabul, Afghanistan	Suwon Korea	Sapporo, Japan	Mean	
								16 locations	14 locations[a]
Bezostaia	42.6	34.7	19.3	32.7	76.8	49.6	46.5	44.5	43.1
Arthur	32.3	27.9	14.6	27.1	53.5	36.5	28.9	38.8	38.7
Timwin	40.0	29.0	14.4	34.6	65.6	28.3	51.5	40.8	38.7
Sturdy	31.7	31.6	19.5	32.1	62.4	36.3	23.8	38.2	38.2
Parker	32.1	36.7	14.7	31.3	58.6	40.7	6.1	37.1	37.9
Scout 66	41.1	32.6	15.5	27.6	64.9	30.2	16.3	37.4	37.7
Yung Kwang	30.7	22.5	9.9	34.4	57.5	44.6	10.2	36.2	37.2
San Pastore	33.7	36.2	16.8	30.2	57.8	23.5	2.1	.....	37.0
Benhur	30.8	26.1	13.0	30.0	52.6	34.5	38.2	.....	36.5
Blueboy	27.2	33.5	17.8	28.6	65.3	29.8	9.2	35.9	36.5
Fertodi 293	35.0	33.1	14.0	33.4	58.1	27.5	5.6	36.0	36.5
Shawnee	35.9	28.4	13.0	28.1	63.9	27.2	8.4	35.3	36.4
Gage	33.8	26.5	14.1	29.0	57.6	31.1	5.5	34.5	35.5
Stadler	30.6	24.1	9.0	29.8	59.5	34.1	53.2	37.8	34.8
Riley 67	32.2	25.0	11.6	31.4	54.6	34.9	41.9	36.3	34.5
Triumph 64	33.0	28.4	15.2	29.6	47.1	26.0	33.8	35.3	34.5
Lancer	34.6	34.3	14.5	31.7	59.8	25.3	11.7	34.3	34.2
Yorkstar	37.1	22.8	10.9	26.8	69.4	34.0	38.9	35.9	31.2
Bankuti 1201	34.2	33.8	9.9	32.6	60.6	24.7	2.1	31.9	33.6
NB 67730	33.0	27.6	13.0	33.1	55.7	31.5	8.7	32.3	32.9
Heine VII	25.1	36.6	12.6	29.6	61.7	28.3	5.4	33.1	32.8
Atlas 66	25.9	19.9	11.7	29.9	48.9	31.4	0.2	30.7	32.0
KEY — Purdue 4930A6-28-2-1	25.1	17.4	9.0	27.5	45.7	36.8	22.5	32.0	31.9
Winalta	23.6	31.4	10.5	28.7	48.9	28.6	30.0	31.1	30.2
Gaines	21.0	25.2	8.7	31.0	51.1	19.9	4.3	28.9	28.9
Cappelle Desprez	23.0	33.5	9.2	29.8	52.6	16.8	.....	.....	28.0
Felix	24.8	29.4	7.8	26.9	57.1	11.8	21.4	26.9	24.9
Odin	19.2	30.3	5.5	28.5	46.8	11.5	26.5	24.9	21.6
Lerma Rojo 64	28.9	33.9	19.8	29.7	48.7	.....	.....	.....	39.9[b]
INIA 66	11.6	17.4	13.3	.....	48.7	.....	.....	.....	30.7[c]
Mean	30.3	29.0	13.0	30.2	57.1	29.8	20.5	34.9	32.7

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[a] Excluding Svalof, Sweden, and Sapporo, Japan.
[b] Mean of 10 locations for which Bezostaia averaged 32.2 q/ha.
[c] Mean of 8 locations for which Bezostaia averaged 29.6 q/ha.

Table 71. Summary of two-year mean "Test Weights" (kg/hl) for cultivars grown in the "1st and 2nd International Winter Wheat Performance Nurseries," 1969 and 1970.

Cultivar	Wageningen, Netherlands	Svalof, Sweden	Milano, Italy	Rieti, Italy	Novi Sad, Yugoslavia	Fundulea, Romania	Kabul, Afghanistan	Suwon, Korea	Mean 8 locations	Mean 7 locations[a]
Parker	83.2	82.7	82.8	82.1	79.1	81.6	84.9	73.1	81.2	81.0
Bezostaia	85.2	82.9	81.8	82.8	76.2	79.3	84.3	72.3	80.6	80.3
Triumph 64	83.9	80.5	81.0	81.3	77.4	81.4	84.8	71.3	80.2	80.2
Shawnee	84.8	81.8	81.6	82.4	77.3	81.0	84.1	68.5	80.2	80.0
Purdue 4930A6-28-2-1	83.7	79.5	81.7	81.6	77.6	79.9	81.5	70.5	79.5	79.5
Winalta	84.9	80.5	81.3	80.8	74.1	81.3	83.9	69.3	79.5	79.4
Scout 66	82.6	80.0	80.4	81.1	75.9	81.3	85.0	69.6	79.5	79.4
Benhur	83.3	..	80.8	81.4	77.6	80.4	82.7	68.3	.	79.2
Lancer	85.2	82.6	78.9	81.1	74.8	81.9	84.1	68.2	79.6	79.2
Gage	83.1	79.3	80.1	80.4	75.3	79.9	82.9	70.2	78.9	78.8
Arthur	81.6	79.2	80.5	80.9	77.1	79.9	82.4	69.3	78.9	78.8
NB 67730	82.9	78.4	80.0	80.4	75.6	80.1	82.0	69.1	78.6	78.6
Bankuti 1201	83.2	79.0	81.4	78.7	76.1	80.7	83.5	65.8	78.6	78.5
Sturdy	85.1	80.6	79.6	79.9	75.9	79.1	82.8	66.3	78.7	78.4
Stadler	85.8	83.9	79.5	70.1	77.2	81.3	82.8	66.3	78.4	77.6
Fertodi 293	83.0	80.5	79.7	77.9	72.2	78.9	81.8	66.4	77.6	77.1
San Pastore	81.7	..	78.2	76.5	72.1	76.8	82.0	69.6	.	76.7
Riley 67	84.0	81.8	77.4	71.9	74.0	79.0	83.5	67.1	77.3	76.7
Atlas 66	84.3	81.0	77.7	80.4	73.8	73.8	80.6	63.5	76.9	76.3
Yung Kwang	83.2	79.5	78.8	75.4	71.9	77.1	78.4	67.9	76.5	76.1
Timwin	80.3	81.1	77.8	78.3	73.2	78.0	78.8	65.6	76.6	76.0
Blueboy	78.6	80.4	74.0	73.7	67.7	71.4	77.7	66.3	73.7	72.8
Yorkstar	79.0	79.2	72.7	66.3	64.7	72.9	78.8	60.1	71.7	70.6
Heine VII	81.1	79.4	73.5	69.0	63.1	66.0	79.7	61.1	71.6	70.5
Gaines	78.7	79.5	71.2	65.0	64.2	68.7	78.2	57.5	70.4	69.1
Cappelle Desprez	79.5	78.3	73.2	67.8	65.8	62.7	77.8	55.6	70.1	68.9
Felix	80.4	79.8	71.4	65.2	60.6	64.1	77.7	54.5	69.2	67.7
Odin	79.2	82.2	72.3	65.0	63.1	59.4	77.5	56.8	69.4	67.6
Lerma Rojo 64	84.7	.....	80.4	80.4	74.5	.. ..	83.6	..	..	80.7[b]
INIA 66	82.5	.....	79.3	79.9		.. ..	83.8	.....	.....	81.4[c]
Mean	82.6	80.5	78.3	76.6	72.7	76.3	81.7	66.1	76.9	76.3

[a] Excluding Svalof, Sweden.
[b] Mean of 5 locations for which Bezostaia averaged 82.1 kg/hl.
[c] Mean of 4 locations for which Bezostaia averaged 83.5 kg/hl.

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Table 72. Summary of two-year mean "Grain Protein" contents (%) for cultivars grown in the "1st and 2nd International Winter Wheat Performance Nurseries," 1969 and 1970.

Cultivar	Wageningen, Netherlands	Svalof, Sweden	Milano, Italy	Rieti, Italy	Novi Sad, Yugoslavia	Fundulea, Romania	Ankara, Turkey	Eskisehir, Turkey	Karaj, Iran	Kabul, Afghanistan	Suwon, Korea	Mean 11 loc.	Mean 10 loc.[a]
Atlas 66	16.4	18.6	16.8	17.1	18.5	19.6	18.3	16.3	16.1	18.0	19.3	17.7	17.6
Purdue 4930A6-28-2-1	18.3	20.5	15.5	16.3	19.1	17.9	15.8	15.4	15.1	18.4	18.4	17.3	17.2
NB 67730	16.7	19.5	15.3	16.2	17.3	16.9	15.5	14.7	14.7	18.3	17.2	16.6	16.5
Cappelle Desprez	14.7	14.8	14.3	14.0	18.0	18.9	16.1	15.1	14.2	16.2	18.5	15.9	15.6
Bankuti 1201	15.3	18.1	14.1	14.0	16.1	15.7	15.2	14.9	13.6	15.5	16.9	15.4	15.3
Triumph 64	17.1	16.4	14.3	14.7	15.4	15.8	14.5	14.2	13.0	17.1	14.8	15.2	15.3
Odin	13.8	13.9	12.8	14.2	16.5	16.8	14.8	14.8	15.2	15.4	16.7	15.0	14.8
Benhur	15.3	17.4	13.9	13.7	16.2	16.1	13.4	13.3	13.4	15.4	15.3	14.9	14.8
Fertodi 293	15.6	16.6	13.0	14.0	15.9	14.6	15.5	13.6	12.7	15.7	16.1	14.8	14.7
Parker	15.7	16.5	13.0	12.7	14.7	15.4	14.4	13.7	14.4	15.5	15.2	14.7	14.6
Sturdy	14.4	15.3	13.9	13.7	14.8	16.3	15.2	14.8	13.4	14.4	16.5	14.8	14.6
Felix	12.8	13.6	11.7	13.8	16.3	16.1	14.5	15.5	15.3	15.6	19.2	14.9	14.5
Gage	15.1	17.4	13.3	13.8	15.6	15.1	13.7	12.6	12.6	16.1	15.4	14.6	14.5
Arthur	14.8	17.2	13.1	13.4	15.6	15.2	13.5	12.6	12.8	15.9	15.7	14.5	14.4
Scout 66	16.4	17.4	13.0	13.8	15.3	14.8	13.3	12.9	12.5	14.7	14.4	14.4	14.4
Heine VII	13.2	13.4	12.4	12.4	16.7	17.0	14.4	14.7	13.8	15.3	17.1	14.6	14.3
Yung Kwang	14.6	17.8	13.4	13.1	14.0	15.5	14.4	13.0	12.6	14.6	17.2	14.6	14.3
Timwin	14.1	15.5	12.6	13.0	15.8	15.4	13.9	13.9	13.3	15.1	16.9	14.5	14.3
Riley 67	14.3	16.7	12.3	11.1	15.2	16.2	14.0	12.4	13.1	15.6	15.6	14.2	14.1
Winalta	14.2	16.5	13.0	12.5	14.4	14.1	13.9	12.7	13.0	15.0	14.7	14.0	13.9
Lancer	14.9	15.9	13.5	13.2	15.5	14.4	12.3	12.5	12.6	14.6	15.3	14.1	13.9
Blueboy	13.1	16.5	12.0	12.6	14.9	14.9	13.5	13.8	12.7	13.5	16.5	14.0	13.8
San Pastore	14.6	13.6	11.5	11.9	14.4	14.3	13.5	14.3	12.2	15.4	..	.	13.6
Shawnee	13.2	16.2	12.3	12.5	14.5	13.8	13.4	13.3	12.6	14.5	15.6	13.8	13.6
Bezostaia	13.4	14.3	12.7	12.9	15.0	14.5	13.4	13.1	12.0	13.3	13.9	13.5	13.5
Stadler	12.9	14.9	11.4	10.9	14.2	14.8	12.8	12.9	12.7	14.5	14.6	13.3	13.2
Gaines	12.6	13.9	11.0	12.1	15.2	15.3	11.6	11.5	11.7	13.1	14.8	13.0	12.8
Yorkstar	12.2	15.5	11.0	9.8	14.8	12.1	11.7	11.7	12.2	12.8	14.0	12.5	12.4
Lerma Rojo 64	14.9	.....	14.0	14.0	17.1	.....	15.3	15.3	13.4	16.5	.....	.....	15.1[b]
INIA 66	15.2	.....	14.8	14.6	.....	.. ..	14.5	14.3	..	14.7	.....	..	14.7[c]
Mean	14.7	16.2	13.2	13.4	15.8	15.6	14.2	13.8	13.3	15.4	16.1	14.7	14.6

[a] Excluding Suwon, Korea.
[b] Mean of 8 locations for which Bezostaia averaged 13.2%.
[c] Mean of 6 locations for which Bezostaia averaged 13.1%.

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Table 73. Summary of two-year mean "Lysine" contents (percent of protein) for cultivars grown in the "1st and 2nd International Winter Wheat Performance Nurseries," 1969 and 1970.

Cultivar	Wageningen, Netherlands	Svalof, Sweden	Milano, Italy	Rieti, Italy	Novi Sad, Yugoslavia	Fundulea, Romania	Ankara, Turkey	Eskischir, Turkey	Karaj, Iran	Kabul, Afghanistan	Suwon, Korea	Mean 11 loc.	Mean 10 loc.[a]
Yorkstar	3.19	2.82	3.18	3.37	3.01	3.20	3.24	3.11	3.20	3.13	3.00	3.13	3.15
Gaines	3.10	2.92	3.20	3.17	2.98	2.87	3.19	3.14	3.21	3.12	2.91	3.07	3.09
Stadler	3.06	2.83	3.10	3.26	2.88	2.91	3.08	3.06	3.11	2.96	2.85	3.01	3.03
Riley 67	2.92	2.76	3.02	3.18	2.93	2.82	2.94	3.15	3.06	2.87	2.81	2.95	2.97
Timwin	3.01	2.88	3.01	2.96	2.91	2.88	2.94	2.97	3.07	2.96	2.72	2.94	2.96
Blueboy	3.05	2.78	3.06	2.94	2.91	2.82	2.95	2.90	3.05	3.03	2.74	2.93	2.95
San Pastore	2.91	3.00	3.08	2.95	2.87	2.87	2.89	2.85	3.12	2.83			2.94
Odin	2.98	2.92	3.01	2.88	2.90	2.83	2.91	2.96	3.05	2.96	2.80	2.93	2.94
Felix	3.08	2.93	3.00	2.91	2.89	2.89	2.83	2.82	2.91	2.86	2.89	2.91	2.91
Bezostaia	2.96	2.82	2.80	2.79	2.84	2.82	2.91	2.99	3.04	3.01	2.81	2.89	2.90
Arthur	2.92	2.74	2.97	2.82	2.81	2.82	2.92	3.05	3.03	2.85	2.73	2.88	2.89
Winalta	2.88	2.73	2.92	2.86	2.88	**2.84**	**2.86**	**2.95**	**2.97**	**2.89**	**2.78**	**2.87**	**2.88**
Yung Kwang	2.89	2.73	2.86	2.85	2.89	2.83	2.84	2.95	2.99	2.92	2.67	2.86	2.88
Lancer	2.87	2.70	2.87	2.84	2.82	2.85	3.00	2.92	3.04	2.87	2.85	2.88	2.88
Shawnee	2.94	2.68	2.92	2.87	2.78	2.88	2.88	2.91	3.03	2.88	2.79	2.87	2.88
Gage	2.87	2.69	2.84	2.84	2.87	2.81	3.04	2.95	3.09	2.74	2.73	2.86	2.87
Heine VII	2.99	2.83	2.94	2.93	2.77	2.76	2.80	2.78	3.00	2.78	3.32	2.90	2.86
Parker	2.88	2.72	2.90	2.96	2.95	2.77	2.79	2.88	2.91	2.80	2.49	2.82	2.86
Scout 66	2.79	2.70	2.89	2.81	2.83	2.77	2.97	2.96	3.01	2.77	2.82	2.85	2.85
Fertodi 293	2.85	2.72	2.90	2.79	2.82	2.86	2.80	2.85	3.02	2.81	2.79	2.84	2.84
Bankuti 1201	2.86	2.74	2.78	2.76	2.78	2.72	2.86	2.86	2.97	2.84	2.74	2.81	2.82
Benhur	2.84	2.63	2.79	2.72	2.72	2.72	2.88	2.95	2.98	2.83	2.74	2.80	2.81
Sturdy	2.86	2.74	2.82	2.85	2.80	2.77	2.80	2.73	2.90	2.71	2.67	2.79	2.80
Cappelle Desprez	2.86	2.78	2.79	2.75	2.78	2.72	2.73	2.76	2.91	2.77	2.88	2.79	2.79
Triumph 64	2.80	2.74	2.76	2.76	2.81	2.73	2.81	2.79	2.99	2.75	2.75	2.79	2.79
NB 67730	2.84	2.62	2.76	2.67	2.70	2.72	2.80	2.82	2.99	2.79	2.62	2.76	2.77
Purdue 4930A6-28-2-1	2.71	2.53	2.77	2.68	2.67	2.72	2.76	2.83	2.93	2.75	2.64	2.73	2.74
Atlas 66	2.78	2.63	2.66	2.58	2.69	2.59	2.67	2.75	2.79	2.70	2.60	2.68	2.68
Lerma Rojo 64	2.89	.....	2.78	2.76	2.66	.....	2.79	2.78	2.90	2.75	.....	.....	2.79[b]
INIA 66	2.83	.....	2.70	2.66	.....	.....	2.84	2.79	.....	2.73	.....	.....	2.76[c]
Mean	2.91	2.76	2.90	2.87	2.83	2.81	2.89	2.91	3.01	2.85	2.78	2.87	2.87

[a] Excluding Suwon, Korea.
[b] Mean of 8 locations for which Bezostaia averaged 2.92%.
[c] Mean of 6 locations for which Bezostaia averaged 2.91%.

KEY

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77-30

April 21, 1977

WHEAT APPLICATION NO. 7700030 ('KEY')

Ammendment to Original
Exhibit D

Key is most like Atlas 66 for high protein level in a soft red winter wheat type. Comparisons are available in Table 72 (Research Bulletin 248, Univ. of Nebraska), copy furnished with application.

Wheat cultivars	Percent grain protein, 11 location mean
Atlas 66	17.7
Key (Purdue 4930A6-28-2-1)	17.3
Benhur	14.9
Arthur	14.5
Riley 67	14.2
Blueboy	14.0
Timwin	14.5

77-30

May 11, 1977

Wheat Application No. 7700030, 'Key'

New Exhibit D. Data Indicative of Novelty

Key is most similar to 'Atlas 66' and 'Atlas 50'. The three cultivars are high protein soft red winter cultivars with the high protein associated (presumed linked) with resistance to leaf rust derived from the spring wheat cultivar, 'Frondoso'. Key, Atlas 66 and Atlas 50 are the only soft red winter cultivars with the 'linked' leaf rust resistance and high protein characteristics.

Key is novel from Atlas 66 and Atlas 50. Key has brown glumes whereas Atlas 66 and Atlas 60 have white glumes. Key has the H_6 factor for resistance to Hessian fly whereas Atlas 66 and Atlas 50 do not. Key has winterhardiness adequate for full survival in Indiana whereas Atlas 66 or Atlas 50 do not. Key has a light brown glume necrosis (common for 'Hope' derivatives) whereas Atlas 66 and Atlas 50 do not.